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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,474	02/13/2004	Ovidiu Marin	Serie 6479	5531

7590 02/24/2005

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EXAMINER	
RINEHART, KENNETH	

ART UNIT	PAPER NUMBER
3749	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/779,474	MARIN ET AL.	
	Examiner	Art Unit	
	Kenneth B Rinehart	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 2/13/04

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 32 is/are allowed.

6)☒ Claim(s) 1,2,6,7,13 and 14 is/are rejected.

7)☒ Claim(s) 3-5,8-12 and 15-31 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 15 July 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Ashworth et al (5967061). Ashworth shows introducing a sulfur-containing fuel into a combustion chamber (fig. 1), optionally oxygen-enriching an oxidant stream; introducing the oxidant stream into the combustion chamber and mixing it with the sulfur-containing fuel to define a combustion zone (fig. 1); introducing potassium carbonate into the combustion chamber (col. 3, lines 59- column 4, line 13); and burning the sulfur-containing fuel to produce the flue gas and potassium sulfate (col. 3, lines 59 column 4, line 13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashworth et al (5967061) in view of Robertson et al (5605452). Ashworth discloses introducing a sulfur-containing fuel into a combustion chamber at a fuel inlet (fig. 1), optionally oxygen-enriching an oxidant stream; introducing a primary oxidant stream into the combustion chamber

at a primary oxidant inlet positioned proximate to or coincident the fuel inlet and mixing it with the sulfur-containing fuel to define a first combustion zone; (fig. 1); introducing potassium carbonate into the combustion chamber (col. 3, lines 59- column 4, line 13); and burning the sulfur-containing fuel to produce the flue gas and potassium sulfate (col. 3, lines 59 column 4, line 13). Ashworth discloses applicant's invention substantially as claimed with the exception of introducing a secondary oxidant stream into the combustion chamber at a secondary oxidant inlet positioned so that the secondary oxidant enters the combustion chamber in the primary combustion zone. Robertson teaches introducing a secondary oxidant stream into the combustion chamber at a secondary oxidant inlet positioned so that the secondary oxidant enters the combustion chamber in the primary combustion zone (col. 2, lines 20-26) for the purpose of reducing NOX. It would have been obvious to one of ordinary skill in the art to modify Ashworth by including introducing a secondary oxidant stream into the combustion chamber at a secondary oxidant inlet positioned so that the secondary oxidant enters the combustion chamber in the primary combustion zone as taught by Robertson et al for the purpose of reducing NOX so that NOX emissions.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ashworth et al (5967061) in view of Nelson et al (5697307). Ashworth discloses introducing a sulfur-containing fuel into a combustion chamber at a fuel inlet (fig. 1), optionally oxygen-enriching an oxidant stream; introducing a primary oxidant stream into the combustion chamber at a primary oxidant inlet positioned proximate to or coincident the fuel inlet and mixing it with the sulfur-containing fuel to define a first combustion zone; (fig. 1); introducing potassium carbonate into the combustion chamber (col. 3, lines 59- column 4, line 13); and burning the sulfur-containing fuel

to produce the flue gas and potassium sulfate (col. 3, lines 59 column 4, line 13). Ashworth discloses applicant's invention substantially as claimed with the exception of the total oxygen content of the oxidant entering the combustion chamber exceeds 21 %. Nelson et al teaches the total oxygen content of the oxidant entering the combustion chamber exceeds 21 % (col. 21, lines 28-32) for the purpose of reducing the offgas. It would have been obvious to one of ordinary skill in the art to modify Ashworth by including the total oxygen content of the oxidant entering the combustion chamber exceeds 21 % as taught by Nelson et al for the purpose of reducing the offgas so that less abatement apparatus is required to meet environmental requirements thus reducing the cost of the furnace installation.

Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashworth et al (5967061) in view of Robertson et al (5605452) as applied to claim 6 and 13 above, and further in view of Nelson et al (5697307). Ashworth in view of Robertson et al discloses applicant's invention substantially as claimed with the exception of the total oxygen content of the oxidant entering the combustion chamber exceeds 21 %. Nelson et al teaches the total oxygen content of the oxidant entering the combustion chamber exceeds 21 % (col. 21, lines 28-32) for the purpose of reducing the offgas. It would have been obvious to one of ordinary skill in the art to modify Ashworth by including the total oxygen content of the oxidant entering the combustion chamber exceeds 21 % as taught by Nelson et al for the purpose of reducing the offgas so that less abatement apparatus is required to meet environmental requirements thus reducing the cost of the furnace installation.

Allowable Subject Matter

Claims 3-5, 8-12, 15-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to combustion in general: Dayen (4540554).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 571-272-4881. The examiner can normally be reached on 7:20 -4:20.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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KENNETH RINEHART
PRIMARY EXAMINER